

SAUDI DENTAL HYGIENISTS' ATTITUDES AND OPINIONS REGARDING ESTABLISHING A PROFESSIONAL ASSOCIATION

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ABSTRACT

Ahlam Ibraheem Joufi: Saudi Dental Hygienists' Attitudes and Opinions Regarding Establishing a Professional Association
(Under the direction of Jennifer Brame)

Professional associations provide resources for members to enhance their careers. Although dental hygiene has been licensed profession in Saudi Arabia since 1980, there is no professional association. **Objective:** To assess attitudes and opinions of Saudi dental hygienists regarding establishing a professional association. **Methods:** After IRB exemption, a cross sectional survey using Qualtrics™ was utilized A link to the survey was sent to 101 Saudi dental hygienists. **Results:** Seventy-seven responded a response rate of 70.3%. Most (91.5%, n=65) favored the establishment of a professional association. In addition, 88.1% (n=59) responded that it would promote professional development and 86.6% (n=58) agreed that their professional needs could be met. Half of those who opposed its creation believed it would promote professional development and meet their professional needs. **Conclusion:** Saudi dental hygienists support the establishment of a professional association and feel that it would promote the profession and meet their professional needs.

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LIST OF ABBREVIATIONS

ADHA	American Dental Hygienists' Association
IFDH	International Federation for Dental Hygienists
SADH	Saudi Association for Dental Hygiene

INTRODUCTION

Oral health is an integral part of the overall health and the quality of life. According to the World Health Organization, the percentage of dental caries in schoolchildren ranges between 60% to 90% and it is almost 100% in adults.¹ In addition, 15% to 20% of middle-aged people worldwide suffer from severe periodontitis that may eventually lead to tooth loss.¹ Prevention and treatment of oral diseases require collaboration of oral health professionals. Dental hygienists are primary oral health care professionals who have variety of roles such as clinician, educator, researcher, administrator, manager, and patient advocate.² Dental hygienists assess, plan, implement, evaluate and document oral health care processes of the patients.^{2,3}

Most health care professions have a professional organization. According to Matthews, health professionals should advocate for their profession, patients, and health of the community.⁴ Professional associations provide support and guidance for members to reach their goals, discuss evolving issues and new advances in their profession, promote and afford continuing educational courses, set regulations and legislations for the practice, promote evidence based practice, develop and guide research, and develop its agenda.^{5,6} They also encourage and facilitate communication and networking between members and other professional associations to exchange knowledge and provide career opportunities.^{5,6}

The Ministry of Health manages the health system in Saudi Arabia. Its goal is to deliver and improve health care services throughout the country.⁷ It works to maintain quality assurance, accreditation of health facilities to protect patient's privacy and to promote public health.⁶ Saudi Vision 2030 aims to develop a vibrant society, thriving economy and ambitious nation by the year 2030. Goals of this vision include empowering the health system by

educating and training the Saudi workforce and providing a high quality of preventive and therapeutic health services.⁸

There are thirty-nine registered Saudi scientific and professional health associations that represent different health specialties.⁹ The Saudi Commission for Health Specialties has the royal authorization for establishing the scientific and professional associations.⁹ They believe that scientific and professional societies are important in assisting the development of health professionals and creating the opportunity for members to share knowledge and experiences.⁹

According to the Saudi Commission for Health Specialties, health associations should be approved after application if there is no other association for the same specialty in the country, and when there are at least 50 members trained in that specialty.⁹ Once the association gets approval, it should use the name “Saudi Association for (the association specialty).”⁹ The association should set its goals that must include the development of the profession and the association’s members, professional improvement, exchange of knowledge and experience both locally and internationally, facilitate learning and production, and promote health awareness in the society. After setting the goals, they should be implemented by organizing activities for that association. Scientific and professional association activities include conducting professional meetings, research and publishing, continuing education programs and applying public health programs.¹⁰ Currently, there are five dental professional organizations in Saudi Arabia, which are the Saudi Dental Society, the Saudi Orthodontic Society, the Saudi Endodontic Society, the Saudi Oral and Maxillofacial Surgery Society, and the Saudi Pedodontic Society.⁹

In Saudi Arabia, there are nine dental hygiene programs in governmental universities and private colleges.¹¹ The role of the dental hygienist is becoming more recognized as oral disease increases. The purpose of this study was to assess the opinions of Saudi dental hygienists about the need for a Saudi dental hygiene professional organization and to determine how the association might meet the needs of practicing dental hygienists.

REVIEW OF THE LITERATURE

Dental Hygiene Profession:

Oral health is an integral part of the overall health and the quality of life. According to the World Health Organization, the percentage of dental caries in schoolchildren ranges between 60% to 90% and it is almost 100% in adults.¹ In addition, 15% to 20% of middle-aged people worldwide suffer from severe periodontitis that may eventually lead to tooth loss.¹ Prevention and treatment of oral diseases require collaboration of oral health professionals. Dental hygienists are primary oral health care professionals who have variety of roles such as clinician, educator, researcher, administrator, manager, and patient advocate.² Dental hygienists assess, plan, implement, evaluate and document oral health care processes of the patients.^{2,3} They are responsible for preventive, educational and therapeutic services.^{2,3} Clinical services include patient's screening, removing soft and hard tooth deposits, root planing for periodontal therapy, exposing radiographs, providing diagnostic tests, administering local anesthesia, administering and monitoring nitrous oxide sedation, preventing oral caries by application of pit and fissure sealants and fluoride, administering antimicrobial agents, educating patients about oral hygiene procedures, completion of nutritional counseling, removing sutures, and polishing teeth and restorations.^{3,13} Educational services involve promotion of oral health awareness and practices for the individual patient and the community.²

In the United States (U.S.) dental hygienists can work in different areas such as private dental offices, hospital dental clinics, specialty dental practices, government sectors of public health, community health clinics, research centers, nursing homes, educational institutions, corporate industry positions, and marketing.² In some states dental hygienists are allowed to

work independently without dentists' supervision to serve different populations of the community.¹² Furthermore, there are different dental hygiene workforce models aimed to provide proper oral health care and disease prevention. These models are dental or dental hygiene therapist, dental or dental hygiene practitioner and advanced practice dental hygienist. They all require the dental hygienist to be dual licensed.¹³ They provide mainly preventive and limited restorative procedures.¹³

Currently there are 328 entry level, 55 degree completion, and 21 masters dental hygiene programs in the United States and over 185,000 licensed dental hygienists.^{13, 14} In 2013, the dental hygiene professionals celebrated their 100th Anniversary.¹⁵

Dental Hygiene Associations Worldwide:

The American Dental Hygienists' Association (ADHA), the first professional dental hygienists' association, was established in 1923.¹⁵ Soon thereafter the establishment of the American Dental Hygienists' Association, there was interest in the international collaboration of dental hygienists. ADHA assisted in the formation of many dental hygiene programs.¹⁶ With the help of the World Health Organization, it facilitated access to dental hygiene services for several developing countries.¹⁶ It also sponsored the first international symposium for dental hygienists.¹⁶ Dental hygienists all over the world participated in the creation of the future of dental hygiene profession.¹⁷ In 1986, the International Federation of Dental Hygiene (IFDH) was established in Oslo, Norway.^{18,19} It currently consists of 28 dental hygiene association members including from European countries, Canada, Japan and the United states where it is registered as an international non-governmental organization.^{18,19}

The IFDH was formed to promote professional networking and provide advocacy.¹⁹ It supports dental hygiene education and facilitates patients' access to care, as well as promotion of community preventive oral health services. Also, it supports dental hygiene education overall the world and facilitates patient's access to care and promotes community preventive oral health services.¹⁹ The International Symposium of Dental Hygiene is conducted every three years.

“IFDH 2013-2016 Goals are to improve oral health worldwide, strengthen the professional profile of dental hygienists, link dental hygienists worldwide and strengthen the leadership and infrastructure of the IFDH.”¹⁸

Role of Professional Associations:

According to Matthews, health professionals should advocate for their profession, patients, and health of the whole community.⁴ Professional associations provide support and guidance for members to reach their goals, discuss evolving issues and new advances in their profession, promote and afford continuous professional educational courses, set regulations and legislations for the practice, promote evidence based practice, develop and guide research, and develop its agenda.^{5,6} They also encourage and regulate communication and networking between members and other professional associations to exchange knowledge and provide career opportunities.^{5,20} Elective society leaders have an important role in setting the goals and objectives of an association, listen to the members' voices, and determine their needs in order to improve their knowledge and skills that will help promote and maintain optimum oral and general health.⁴

Wolff and colleagues completed a longitudinal study that provide a dynamic perspective on the effects of networking on career success.²² They concluded that career success can be promoted by increasing communication and interaction between members in the profession.²² Establishment of professional organizations, high quality education, and licensure are important parameters of professional identity.²³ The professional association is responsible for meeting its objectives for the current members and aiming to formulate new objectives for future members. It also helps to make a consistent vision for the members and to help them at different career levels.²¹ The members have the opportunity to develop their knowledge and skills by interacting with other members and associations depend mostly on them in providing knowledge and experience and sharing interests and ideas in order to form and improve the basic structure of

the association and facilitate its functions.²² It is essential to consider the new professionals' ideas and plans for improving the professional association.²¹

Professional Associations in Saudi Arabia:

The Ministry of Health manages the health system in Saudi Arabia. Its goal is to deliver and improve health care services throughout the country.⁷ It works to maintain quality assurance and accreditations of health facilities and also to protect patient's privacy and promotes public health.⁶ Health services in Saudi Arabia are going through different phases of development by applying an intersectional approach and elimination of decentralization.⁷ The current strategy of health care services is patient centered primary health care and referrals. Saudi workforce in different sectors including healthcare professionals are getting more attention from the government overtime. In 2016, Saudi Arabia has started to apply the pillars of its new vision for the future of the country.⁸ Saudi Vision 2030 aims to develop a vibrant society, thriving economy and ambitious nation by the year 2030. Goals of this vision include empowering health system by educating and training Saudi workforce and providing high quality of preventive and therapeutic health services.⁸

There are thirty-nine registered Saudi scientific and professional health associations that represent different health specialties.⁷ In Saudi Arabia the Saudi Commission for Health Specialties has the royal authorization for establishing the scientific and professional associations.⁷ They believe that scientific and professional societies are important in assisting the development of health professionals and creating the opportunity for members to share knowledge and experiences.⁹ It also promotes the improvement of healthcare system and practitioners in Saudi Arabia by increasing the quality of health services in the area.⁹

According to the Saudi Commission for Health Specialties, health associations should be approved after application if there is no other association for the same specialty in the country, and when there are at least 50 members trained in that specialty.¹⁰ Once the association gets approval, it should use the name "Saudi Association for (the association specialty)."¹⁰ The

association should set its goals that must include the development of the profession and the association's members, professional improvement, exchange of knowledge and experience both locally and internationally, facilitate learning and production, and promote health awareness in the society.¹⁰ After setting the goals, they should be reflected by setting activities for that association. Scientific and professional and association's activities include conducting professional meetings, workshops, research and publishing, medical continuing education programs and applying public health programs.¹⁰

The rules of the Saudi Commission for Health Specialties also include regulation and supervision of professional and scientific associations, supervision of nominations and elections of the associations' board of directors and accreditations. Each association has to send an annual report to the Commission and proposal for annual aid.¹⁰

History of Dentistry in Saudi Arabia

The beginning of dental education in Saudi Arabia was a natural response to the development of education in the country since it was established by King Abdul-Aziz Al Saud.²⁶ The country encouraged education throughout the Kingdom of Saudi Arabia. King Saud University in Riyadh is the first university there built with a royal act in 1957, and it includes the first dental college in Saudi Arabia and in the Arabic Gulf area, which was established also with a royal act in 1975.²⁶⁻²⁸ Goals of the dental college were to afford a high level of dental training, improve the quality of faculty and dental education, apply technology and new advances in dentistry, achieve international academic accreditation in five years, expand higher education programs to accept larger numbers of students, and to have collaboration with other colleges and offer consultations.²⁸

To date, the dental college in King Saud University has succeeded in educating and training a large number of dentists, who are working in different cities in the country. The university has received The National Commission for Academic Accreditation and Assessment (NCAAA) and The Association for Dental Education in Europe (ADEE) accreditation.¹¹

According to the Ministry of Education in Saudi Arabia, there are currently fourteen dental colleges in governmental universities and six private dental colleges throughout the country.¹¹

In 1981 the Saudi Dental Society was established in Saudi Arabia under the authority of King Saud University.²⁹ The association participated in improving dental education throughout the country by conducting several scientific meetings in different cities as well as the annual International Dental Meeting.²⁹ There are also five additional dental associations in different dental specialties.⁷

In Saudi Arabia, there are a total of nine schools of dental hygiene. Five dental hygiene programs are in governmental universities, which are King Saud University, King Abdul Aziz University, Al Baha University, Qassim University, and King Khalid Military College.¹¹ There are also four private colleges that offer a dental hygiene degree. They are Riyadh College for Dentistry and Pharmacology, Braidah College, Al Enayah College, and Al Farabi College.¹¹ The first dental hygiene program was located in the College of Applied Medical Sciences at King Saud University. That program has graduated many dental hygienists with a bachelor's degree who are currently working in different areas of the country in education, governmental hospitals, and private dental clinics.³⁰

Dental hygienists' needs in Saudi Arabia

With the increasing number of licensed dental hygienists in Saudi Arabia, the establishment of a professional organization may be important to meet the needs of the professionals. There are many aspects of the profession that could improve by having professional meetings in order to exchange knowledge and experiences, provide continuing educational courses, promote higher educational degrees to improve academic and professional opportunities, and disseminate dental hygiene research. Similar to the majority of dental hygienists practicing in the United States, dental hygienists in Saudi Arabia must obtain continuing education credit for license renewal.³¹ A dental hygiene professional organization could assist dental hygienists in identification of courses and provide a means to receive

continuing education. To date, there are no known studies that have investigated the needs of dental hygienists in Saudi Arabia. The aim of this study was to assess the need for a professional association in meeting the needs of dental hygienists in Saudi Arabia.

INTRODUCTION AND REVIEW OF THE LITERATURE

Oral health is an integral part of the overall health and the quality of life. According to the World Health Organization, the percentage of dental caries in school children ranges between 60% to 90% and it is almost 100% in adults.¹ In addition, there are 15% to 20% of middle aged people worldwide who suffer from severe periodontitis, which may eventually lead to tooth loss.¹ Treatment and prevention of oral diseases require collaboration of oral health professionals. Dental hygienists are primary oral health care professionals who have variety of roles such as clinician, educator, researcher, administrator, manager, and patient advocate.² Dental hygienists assess, plan, implement, evaluate and document oral health care processes of the patients.^{2,3}

Dental hygiene associations represent their professional members and advocate for their professional needs.² They work to improve the profession and ensure high quality oral health care for the community.² Professionals can share ideas and experiences as well as provide insight about the future of their career through active participation in a professional society.² According to Matthews, health professionals should advocate for their profession, patients, and health of the whole community.⁴ Professional associations provide support and guidance for members to reach their goals, discuss evolving issues and new advances in their profession, promote and afford continuous professional educational courses, set regulations and legislations for the practice, promote evidence based practice, develop and guide research, and develop its agenda.^{5,6} They also encourage and facilitate communication and networking between members and other professional associations to exchange knowledge and provide career opportunities.^{5,20} Elective society leaders have an important role in setting the goals and objectives of an association, listen to the members' voices, and determine their needs in order

to improve their knowledge and skills that will help promote and maintain optimum oral and general health.⁴

The American Dental Hygienists' Association (ADHA), the first professional dental hygienists' association, was established in 1923.¹⁵ Soon thereafter the establishment of the American Dental Hygienists' Association, there was interest in the international collaboration of dental hygienists. ADHA assisted in the formation of many dental hygiene programs.¹⁶ With the help of the World Health Organization, it facilitated access to dental hygiene services for several developing countries.¹⁶ It also sponsored the first international symposium for dental hygienists.¹⁶ Dental hygienists all over the world participated in the creation of the future of dental hygiene profession.¹⁷ In 1986, the International Federation of Dental Hygiene (IFDH) was established in Oslo, Norway.^{18,19} It consists of 28 dental hygiene association members including from European countries, Canada, Japan and the United States where it is registered as an international non-governmental organization.^{18,19} The IFDH was formed to promote professional networking and provide advocacy.¹⁹ It supports dental hygiene education and facilitates patient's access to care, as well as promotion of community preventive oral health services.¹⁹ Also, it supports dental hygiene education overall the world and facilitates patient's access to care and promotes community preventive oral health services.¹⁹

Professional associations provide career support through professional networking and opportunities for continuing education.⁷ To improve a developing profession, early communication between its professionals is paramount.¹⁶ Furthermore, there are many advantages that professional associations can provide its members by promoting interaction and help them achieve their goals.⁴ Junior professionals can be mentored by experts in the profession to help formulate and achieve their own ideas and directions.²⁵

Wolff and colleagues completed a longitudinal study that provides a dynamic perspective on the effects of networking on career success.²² They concluded that career success can be promoted by increasing communication and interaction between members in the profession.²²

Establishment of professional organizations, high quality education, and licensure are important parameters of professional identity.²³ The professional association is responsible for meeting its objectives for the current members and aiming to formulate new objectives for future members.²¹ It also helps to make a consistent vision for the members and to help them at different career levels.²¹ The members have the opportunity to develop their knowledge and skills by interacting with other members. It is essential to consider the new professionals' ideas and plans for improving the professional association.²¹

The health system in Saudi Arabia is managed by the Ministry of Health. It delivers and improves health care services throughout the country.⁷ It works to maintain quality assurance and accreditations of health facilities and also to protect patient's privacy and promotes public health.⁶ Saudi workforce in different sectors including healthcare professionals are getting more attention from the government overtime. In 2016, Saudi Arabia has started to apply the pillars of its new vision for the future of the country.⁸ Saudi Vision 2030 aims to develop vibrant society, thriving economy and ambitious nation by the year 2030. Goals of this vision include empowering health system by educating and training Saudi workforce and providing high quality of preventive and therapeutic health services.⁸

There are thirty-nine registered Saudi scientific and professional health associations that represent different health specialties.⁷ In Saudi Arabia the Saudi Commission for Health Specialties has the royal authorization for establishing the scientific and professional associations.⁷ They believe that scientific and professional societies are important in assisting the development of health professionals and creating the opportunity for members to share knowledge and experiences.⁹ It also promotes the improvement of healthcare system and practitioners in Saudi Arabia by increasing the quality of health services in the area.⁹

According to the Saudi Commission for Health Specialties, health associations should be approved after application if there is no other association for the same specialty in the country, and when there are at least 50 members trained in that specialty.¹⁰ Once the association gets

approval, it should use the name “Saudi Association for (the association specialty).”¹⁰ The association should set its goals that must include the development of the profession and the association’s members, professional improvement, exchange of knowledge and experience both locally and internationally, facilitate learning and production, and promote health awareness in the society.¹⁰ After setting the goals, they should be reflected by setting activities for that association. Scientific and professional association’s activities include conducting professional meetings, workshops, research and publishing, medical continuing education programs and applying public health programs.¹⁰

In Saudi Arabia, there are nine schools of dental hygiene. Five dental hygiene programs are in governmental colleges and four in private colleges.¹¹ The first dental hygiene program was located in the College of Applied Medical Sciences at King Saud University. That program has graduated many dental hygienists with a bachelor’s degree who are currently working in different areas of the country in education, governmental hospitals, and private dental clinics.³⁰ With the increasing number of licensed dental hygienists in Saudi Arabia, the question of establishing of a professional organization has arisen. There are many aspects of the profession that could improve by having professional meetings in order to exchange knowledge and experiences, provide continuing educational courses, promote higher educational degrees to improve academic and professional opportunities, and disseminate dental hygiene research. Similar to the majority of dental hygienists practicing in the US, dental hygienists in Saudi Arabia must obtain continuing education credits for license renewal.³¹ A dental hygiene professional organization could assist dental hygienists in identification of courses and provide a means to receive continuing education. To date, there are no known studies that investigate the needs of dental hygienists in Saudi Arabia. The aim of this study was to assess the need for a professional association in meeting the needs of dental hygienists in Saudi Arabia.

MATERIALS AND METHODS

Survey and study design:

A 36-item cross sectional survey was designed by the investigators to assess dental hygienists' professional needs in different regions of Saudi Arabia, and their opinions and attitudes about establishing a professional association. This project was exempted by the Institutional Review Board at the University of North Carolina. (IRB #16-1445). The survey was pilot tested by five dental hygienists who are currently working in Saudi Arabia and revised prior to distribution.

The survey employed Qualtrics™ and consisted of five sections covering the following topics: 1) professional association memberships; 2) dental hygienists' professional needs; 3) attitudes and opinions about the establishment of a Saudi Association for Dental Hygiene (SADH); 4) willingness to become members of the future SADH; 5) demographics. The survey was emailed in October 2016 and responses were collected through of December 2016. An email reminder was sent to non-respondents two weeks after the initial email. No personal identifiers were requested on the survey. All data were stored in a password-protected database.

Sample identification and selection

Although the Saudi Commission for Health Specialties reported that there were 298 licensed Saudi dental hygienists in Saudi Arabia, the Commission was unable to provide email addresses. Email addresses were available for 101 respondents through networking and direct contact by phone calls and text messages. In addition, snowball anonymous link recruitment was used to increase access to Saudi dental hygienists.

Statistical analysis

Descriptive statistics were generated for each survey item. Fisher's Exact test was used to compare the attitudes of those who favored the creation of a professional association and those who did not. Level of significance was set at $p < 0.05$.

RESULTS

Seventy-seven dental hygienists responded to the survey, which consists of (49.4%) email and (50.6%) snowball anonymous link recruitments. Six respondents only provided demographic information for a response rate of 70.3%.

Demographics:

Ages of the respondents ranged from 22 to 47 years; 77.61% (n=52) were females and 22.4% (n=15) were males. The percentage of respondents who currently work in dental hygiene is 91% (n=61). The highest percentage work in the ministry of health hospitals and primary care centers 40.7% (n=24), followed by military hospitals 22% (n=13), and the lowest was 18.6% (n=11) for those who work in academic institutions. In addition, 18.6% (n=11) work in private dental clinics and other practice settings.

Regarding educational background, a bachelor's degree was the highest earned degree for 68.8% (n=44) of respondents, while 3.13% (n=2) reported a diploma or certificate. In addition, 25% (n=16) of respondents have a masters' degree and 3.13% (n=2) have a doctoral degree.

Saudi dental hygienist's professional needs:

Respondents were asked to classify their professional needs into critical, desirable but not critical, not applicable and not needed. The highest percentage for critical needs was 80.8% (n=59) for attending workshops and continuing education. For desirable needs, the highest percentage was 39.7% (n=29) for receive mentoring from experienced dental hygienists Saudi dental hygienist's needs are illustrated in **(Table 1)**.

Attitudes and opinions about the establishment of a Saudi Association for Dental Hygiene:

Of those who responded, 91.5% (n=65) favored the establishment of a Saudi dental hygiene professional association. Regarding their expectations of the SADH, 88% (n = 59) responded that such an association would promote development of the profession in the country, and 86.6% (n=58) agreed that their professional needs could be met by its establishment (**Figure 1**). Of the respondents, 85.1% (n=57) believe that a professional association would advocate and support the profession in the country and 79.1% (n=53) agree that it would provide them with regular professional meetings (**Figure 2**).

Regarding the role of a professional association in improving the oral health status of Saudi society, 94.4% (n=67) responded that a professional association can improve oral health services and awareness of the Saudi Society. In addition, 89.6% (n=60) of respondents agreed that establishment of a professional association can help promote the Saudi Vision 2030 (**Figure 3**).

Bivariate statistical analysis indicated that half of those who did not support the creation of the professional association (n=3) believed it would promote development of the profession and meet professional needs. (**Tables 2 & 3**). The bivariate analysis also indicated that among those who favored the establishment of a professional association, 95.3% (n=61) reported that it would provide them with increased knowledge about oral health (p=0.0166). In addition, 92.2% (n=59) reported that it would provide them with continuing education courses and specialized training (p=0.0186). There were also 90.6% (n=58) who agreed that it would increase their networking and sharing of professional experiences (p=0.0207). Interestingly, two thirds of those who opposed its establishment still agreed that it can provide them with increased knowledge about oral health, provide continuing education courses and specialized training, and increase their networking and sharing professional experience at least somewhat (p<0.05).

Willingness to become members of the future Saudi dental hygiene association:

Participants were asked about their willingness to become members of the SADH once it is established. Results indicated that 92.5% (n=62) would join as a member of the professional association. Furthermore, 82.1% (n=55) of the respondents were also interested in leadership positions in the future dental hygiene professional association.

DISCUSSION

The purpose of this study was to assess the professional needs of dental hygienists in Saudi Arabia and investigate their attitudes and opinions regarding establishment of a professional association in the country. Although the dental hygiene profession started in Saudi Arabia more than thirty years ago, there is no professional association for dental hygiene professionals.⁹ This study was the first of its kind to investigate the current issues of dental hygiene professionals in Saudi Arabia. It reflected the attitudes and opinions about the role of an association in improving the profession in the country and helped to identify the professional needs of dental hygienists' in Saudi Arabia.

The ratio of male and female respondents was significant with 22.7% (n=15) male, and 77.3% (n=52) females. This might be related to the history of enrolling female dental hygiene students only into the dental hygiene program in King Saud University until 2008 after which it began to enroll males. Also, there are a few additional dental hygiene programs that have recently been established in the country that teach both males and females. Consistent with other countries, ratios of female to male dental hygienists in most countries worldwide indicate that there are more females than males dental hygienists.¹⁸ For example, in 2014, Canada reported that there were 21,000 female dental hygienists and 500 males. Also in 2011, Australia reported that of the dental hygienists in the country, 98% were females¹⁸

Ansmann and colleagues reported in 2014 that professional societies provide networking, mentoring for new graduates, and sharing of knowledge and experience.²³ Responses from this study indicate a high level of agreement on the effective role of the future Saudi dental hygiene association. The majority agreed that networking and sharing of

experiences would be facilitated by the establishment of the SADH at least somewhat. In addition, most felt that an additional benefit would be to receive mentoring from senior professionals and that it will provide them with increased knowledge about oral health. Matthews stated that professional associations have an important role in keeping its members updated by disseminating knowledge and publications periodically about new advances in the profession.⁴ They also emphasized the role of professional associations in facilitating the access to members and keep them updated by providing publications and notifying them about new issues. Furthermore, regular communication and collaboration of the association and its members is important for the professional development.⁴ Findings of this study indicated that 88.1% of the respondents agreed on the role of the SADH in promoting the development of the profession in the country.

Matthews found that a strong advocacy for a profession can result from the consensus of lots of professionals to reach their goals.⁴ Results of this study suggest that most of dental hygienists in Saudi Arabia share the same needs with varying degrees of agreement. Regarding their expectations, 86.6% (n=58) of the respondents reported that establishing professional association in the country would help them meet their professional needs.

According to the Saudi Commission for Health Specialties, professional associations should be approved if there is no other association for the same specialty in the country, and when there are at least fifty members trained in that specialty.¹⁰ The number of licensed dental hygienists in Saudi Arabia is more than 50 members. This number will allow the Saudi dental hygienists to apply after meeting other requirements for establishing the association. Our results indicated that the proportion of respondents who favored the establishment of the Saudi dental hygiene association is 91.5% in comparison to 8.5% who opposed it. The study did not identify any clear reason for why there was opposition to the establishment of this association and the survey didn't include a question to ask them why. However, future contact is possible by email addresses that were provided by four of those who opposed its

establishment. Of the respondents, most were interested in leadership positions in the future dental hygiene professional association, which requires dental hygienists in Saudi Arabia to attend leadership training. Leadership courses could be conducted during Saudi dental hygienists' meeting once the association is established or it could be included within the dental hygiene education programs in the country.

Limitations of the study:

Limitations of the study include a small sample size. The Saudi Commission for Health Specialties identified a list of 298 dental hygienists in Saudi Arabia. The authors were not allowed to obtain email addresses of all the licensed Saudi dental hygienists from the commission because of privacy issues. As a result, investigators utilized a list of email addresses that were collected after obtaining permission from participants. In addition, investigators supplemented the email list by the use of the snowball technique to increase the rate of access to dental hygienists in different regions in the country. Hopefully a more organized method of tracking dental hygienists in Saudi will be established in the future.

Implications for future research:

One future research question suggested by this paper is assessment of the current state of leadership training available to Saudi dental hygienists and if Saudi dental hygienists are prepared for this leadership role. Also a formal needs assessment of senior dental hygiene students and faculty about the establishment of a professional association for dental hygiene could be conducted with more specific contact information. After establishing a Saudi Association for Dental Hygiene, results from this study could provide a resource for setting goals and objectives for the new association. There are many aspects in the study that could benefit from further research including identification of all dental hygiene professionals in Saudi Arabia and building on the database for future association needs.

CONCLUSION

A representative sample of dental hygienists in Saudi Arabia support the establishment of a professional association and feel that it would advocate for dental hygienists, promote the dental hygiene profession in the country and help them meet their professional needs. Once it is established, the Saudi Dental Hygiene Association has to meet the high expectations of dental hygienists in the area. Leadership training may be necessary to prepare leaders for the professional association and future growth of dental hygienists in Saudi Arabia.

APPENDIX



THE UNIVERSITY
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at CHAPEL HILL

Q1 Are you a member of any of the professional associations listed below? (Please choose all applicable answers)

- ☐ Saudi Dental association
- ☐ International dental associations
- ☐ American Dental Hygienists' Association
- ☐ International Federation of Dental Hygienists' Association
- ☐ Other health associations, please specify _____

Q2 What is the primary benefit you receive from membership?

- ☐ Professional networking at local or international levels
- ☐ Free or discounted publications
- ☐ Exclusive online resources
- ☐ Seminars, workshops, or symposiums
- ☐ Professional certification opportunities
- ☐ Published or internet job listings
- ☐ Other benefits

Q3 please specify

Q4 Which of the following do you currently need to help you met your professional goals?

	Critical need (1)	Desirable but not critical (2)	Not needed (3)	Not Applicable (4)
1. Attending professional meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Mentoring from experiemced dental hygienists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Conducting oral health research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Attending workshops / continuous education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5 To what degree is each of the following are needed to help you meet your personal professional needs?

	Critical need (1)	Desirable but not critical (2)	Not needed (3)	Not Applicable (4)
1. A master / PhD program to attend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Participating in public oral health programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Access to online educational courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Networking with dental hygienists in the country	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6

	Strongly Favor (1)	Somewhat Favor (2)	Somewhat Oppose (3)	Strongly Oppose (4)
Do you favor the establishment of a professional association for dental hygiene in Saudi Arabia?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 To what degree do you believe the SADH can meet your individual needs?

	A lot (1)	Only a little (2)	Somewhat (3)	Not at all (4)
1. Provide me with increased knowledge about oral health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Improve my professional skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Provide me with continuing education courses and specialized training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Increase my networking and sharing of professional experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Improve my chances for meeting other dental hygienists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 Please indicate your level of agreement with the following statements regarding the Saudi Dental Hygiene Association (SADH)

	Strongly agree (1)	Somewhat Agree (2)	Somewhat Disagree (3)	Strongly disagree (4)
1. Dental hygienists in Saudi Arabia have professional needs that can be met by the SADH	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. SADH will promote development of the profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. SADH can improve oral health awareness of the Saudi Society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. SADH can improve oral health services for the Saudi Society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. SADH can help promote Saudi Vision 2030	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 How Important is it to you that the SADH provide following opportunities?

	A lot (1)	Only a little (2)	Somewhat (3)	Not at all (4)
1. Provide regular professional meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Provide mentoring for the newly graduates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Emphasize on the role of primary oral health clinician	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Advocate and support the profession in the country	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Help create job opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 Once the SADH is established, will you become a member?

- ☐ Yes
- ☐ No

Q11 what would prevent you from becoming a member? (Check all that apply)

- ☐ No time to participate
- ☐ Cost of membership
- ☐ Lack of interest
- ☐ My needs are met by other professional activities
- ☐ Other (please specify) _____

Q12 Are you interested in a leadership role in the SADH ?

- ☐ Yes
- ☐ No

Q13 What is your age?

Q14 What is your gender?

- ☐ Male
- ☐ Female

Q15 Are you currently working in dental hygiene?

- ☐ Yes
- ☐ No

Q16 For how many years have you been practicing dental hygiene?

Q17 In which type of setting are you employed?

- ☐ Ministry of Health hospital
- ☐ Military hospital
- ☐ Private hospital
- ☐ Academic education institution
- ☐ Other (please specify) _____

Q18 What is your highest educational degree?

- ☐ Diploma or certificate
- ☐ Bachelor's degree
- ☐ Masters degree (specify the degree) _____
- ☐ Doctoral degree (specify the degree) _____

Q19 What is your e-mail for future contact: (optional)

TABLES AND FIGURES

Table 1. Saudi dental hygienists' professional needs (N=73)

	critical need	Desirable but not critical	Not Applicable	Not needed
Attending professional meetings	48 65.8%	18 24.7%	4 5.5%	3 4.1%
Receiving mentoring from experienced dental hygienists	36 49.3%	29 39.7%	2 2.7%	6 8.2%
Conducting oral health research	43 58.9%	24 32.9%	5 6.9%	1 1.4%
Attending workshops and continuing education	59 80.8%	11 15.1%	1 1.4%	2 2.7%
Establishing master/PhD programs	46 63%	22 30.1%	2 2.7%	3 4.1%
Participating in public oral health programs	47 64.4%	20 27.4%	1 1.4%	5 6.9%
Access to online educational courses	38 52.1%	26 35.6%	3 4.1%	6 8.2%
Networking with dental hygienists in the country	46 63%	22 30.1%	2 2.7%	3 4.1%

Table 2. Respondents who favor/oppose the establishment of a professional association and their perception about its role in meeting their needs (p= 0.0079)

Dental hygienists in Saudi Arabia have professional needs that can be met by the SADH						
Do you favor the establishment of a professional association for dental hygiene in Saudi Arabia?	Strongly agree		Somewhat agree	Somewhat disagree	Strongly disagree	Total
	Favor	46 69.7%	8 12.1%	5 7.6%	1 1.5%	60 90.1%
	Oppose	1 1.5%	2 3%	2 3%	1 1.5%	6 9.1%
Total		47 71.2%	10 15.2%	7 10.6%	2 3%	66 100%

Table 3. Respondents who favor/oppose the establishment of a professional association and their perception about its role in promoting the development of the profession (p= 0.0053)

Do you favor the establishment of a professional association for dental hygiene in Saudi Arabia?	SADH will promote development of the profession					Total
		Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	
Favor		46 69.7%	9 13.6%	4 6.1%	1 1.5%	60 90.1%
Oppose		1 1.5%	2 3%	2 3%	1 1.5%	6 9.1%
Total		47 71.2%	11 16.7%	6 9.1%	2 3%	66 100%

Figure 1. Attitudes and opinions of Saudi dental hygienists regarding the role of establishing a professional association in meeting their personal professional needs. (N=71)

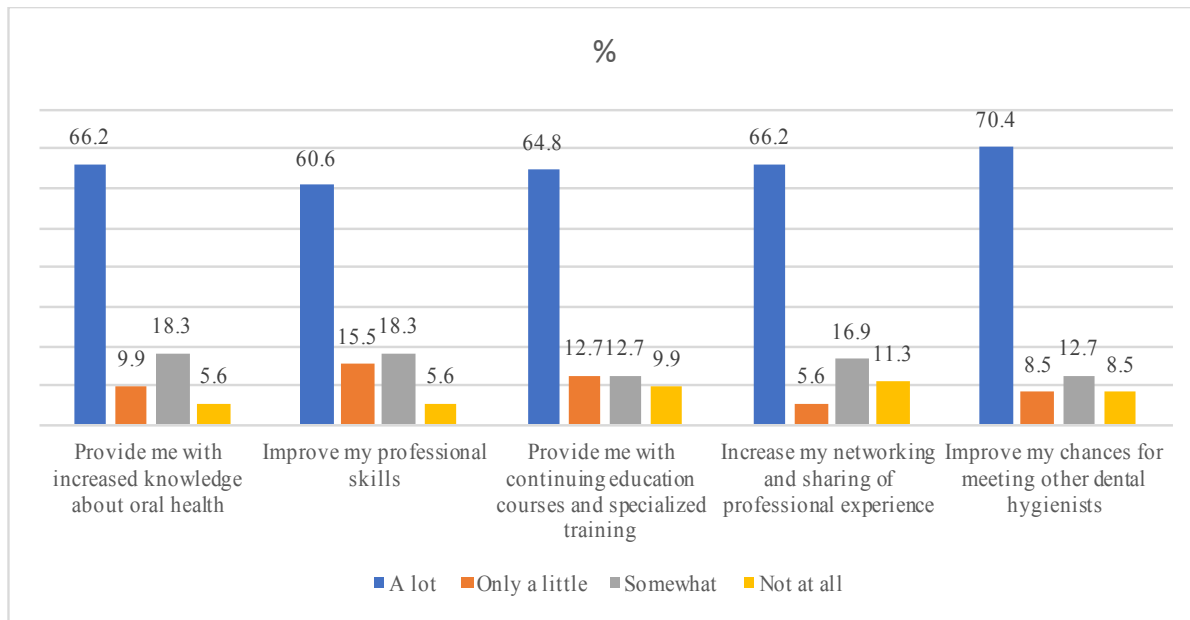


Figure 2. Attitudes and opinions of Saudi dental hygienists regarding the role of establishing a professional association in meeting the profession's needs. (N=67)

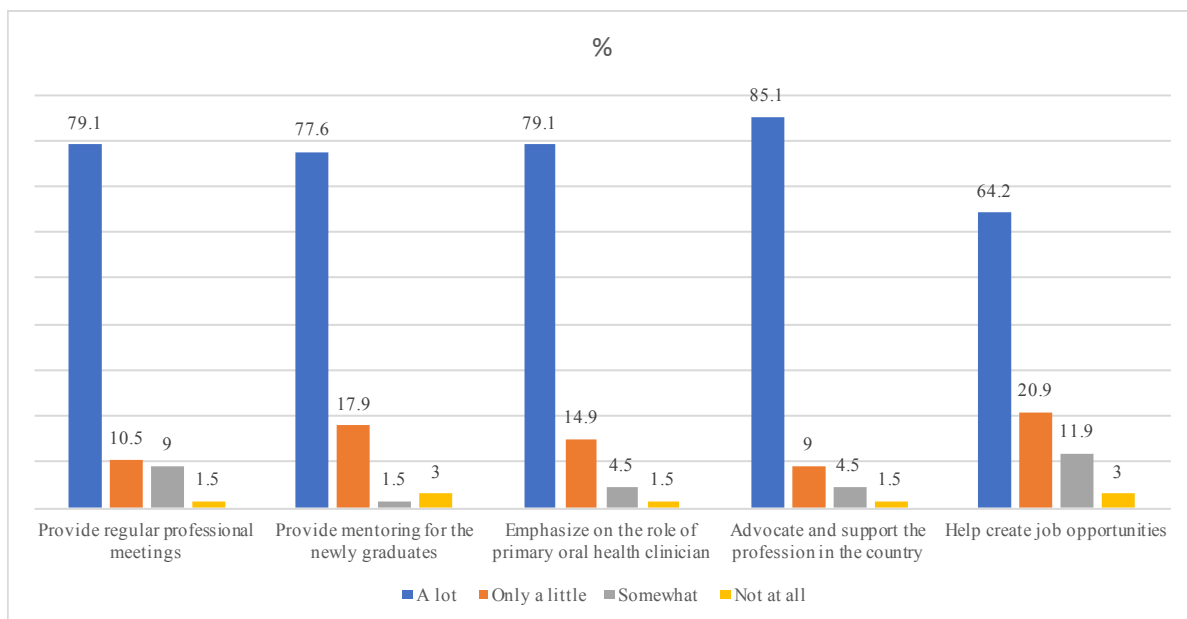
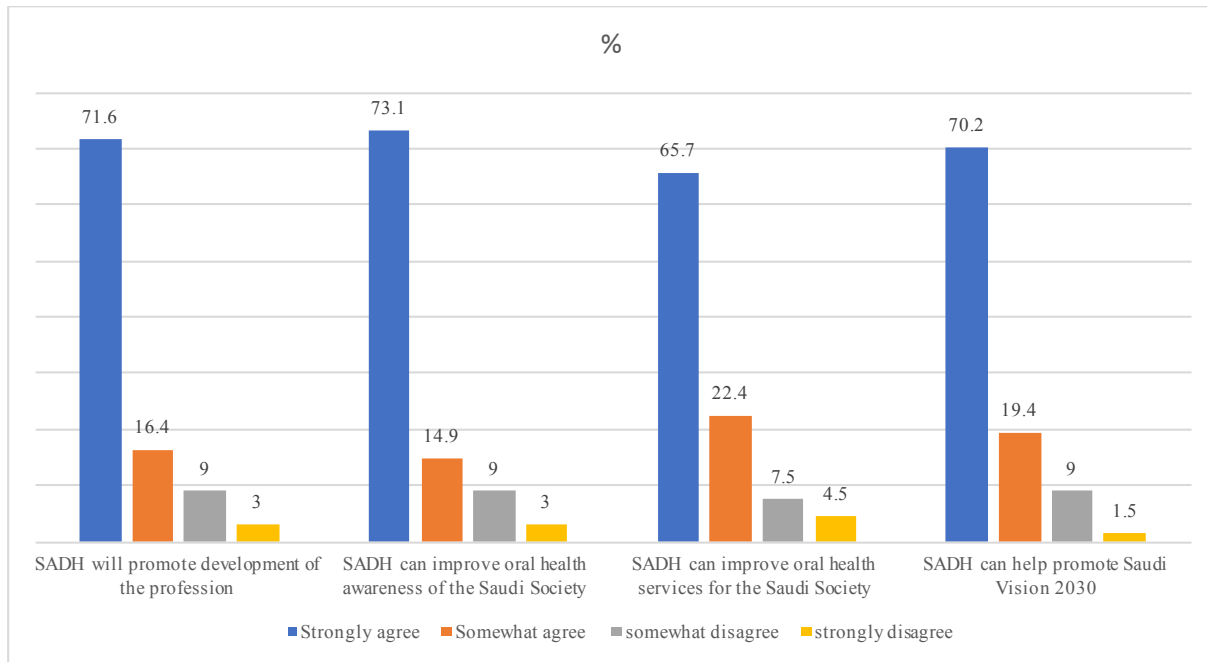


Figure 3. Attitudes and opinions of Saudi dental hygienists regarding the role of establishing a professional association in improving the profession and the oral health of Saudi Society.
(N=67)



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